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S. HRG. 103–366

OVERSIGHT ON THE FASTENER QUALITY ACT

Y 4.C 73/7:S.HRG.103-366

Oversight on the Fastener Quality A...

HEARING

BEFORE THE

SUBCOMMITTEE ON SCIENCE, TECHNOLOGY, AND SPACE

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

JULY 28, 1993

Printed for the use of the Committee on Commerce, Science, and Transportation

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OVERSIGHT ON THE FASTENER QUALITY ACT

WEDNESDAY, JULY 28, 1993

U.S. SENATE,
SUBCOMMITTEE ON SCIENCE, TECHNOLOGY,
AND SPACE OF THE
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:35 a.m., in room SR–253 of the Russell Senate Office Building, Hon. John D. Rockefeller IV (chairman of the subcommittee) presiding.

Staff members assigned to this hearing: Patrick H. Windham, professional staff member; and Louis C. Whitsett, minority staff counsel.

OPENING STATEMENT OF SENATOR ROCKEFELLER

Senator ROCKEFELLER. I want to apologize for the typical condition that I am late and that Conrad Burns is on time. [Laughter.]

Senator BURNS. May the record so show.

Senator ROCKEFELLER. Yes, the record is replete with that.

One, I am incredibly grateful that there are no television lights. It is wonderful. We can actually talk.

I want to welcome you to this oversight hearing on the Fastener Quality Act of 1990 and issues that might be associated with that. The fastener law responds to a very important issue of public safety, the need to ensure the reliability of the special bolts, screws, and other fasteners that are used in safety-related applications such as motor vehicles, aircraft, bridges, and buildings.

Investigations during the late 1980's showed that all too often substandard and even counterfeit fasteners were sold to unsuspecting customers who then put them in these important applications. Several accidents were attributed to these faulty bolts. The 1990 act authored by Congressman John Dingell, a rather strong letter of which is being read just now, just floated to the ground. It probably ought to be rescued.

It regulates both the manufacture and distribution of certain high strength bolts used in critical applications. It requires samples of newly manufactured high strength fasteners to be tested by laboratories accredited by the Commerce Department's National Institute of Standards and Technology, so as to ensure that these items indeed meet applicable industry standards. Distributors must keep fasteners from different production runs or lots. They must keep them separate so as to enable interested customers to know exactly from which lot a given bolt or screw did, in fact, come.

The Department of Commerce is now close to issuing final regulations for fastener quality for that act. While writing these regulations, however, both NIST and the industry have learned that a much higher percentage of the fasteners sold in America will be covered by the act than was originally thought, and that, therefore, the compliance costs imposed on industry will be much higher than originally thought. According to the NIST regulatory impact analysis for the law, industry compliance costs could range as high as $487 million per year, with most of that borne by fastener distributors.

The purpose of today's hearings is to examine four key questions. First, what is the current status of the fastener industry and is there still a major problem with substandard and counterfeit products? Second, what is the current status of Commerce's proposed final regulations? Third, what percentage of fastener sales are likely to be affected by the regulations, and at what cost and with what likely effectiveness?

And then finally, what are the arguments in favor and against three amendments which the official NIST fastener advisory committee says will reduce compliance costs without compromising public safety? Two of those amendments have been attached to H.R. 820 and have passed the House. The third was not included. The counterpart to H.R. 820, S. 4, is now awaiting Senate floor action. That is a bill that my friend Senator Burns and I are very much involved with, and it does not contain any fastener amendments.

To help the subcommittee review these questions we have a very distinguished panel of five experts led by the senior NIST official directly responsible for implementing the law. The other panelists represent fastener manufacturers, importers, and two groups of distributors. I welcome all of our witnesses.

Now, I want to say something which makes me very happy, makes me very proud, and also explains something. I am a conferee for the Senate Finance Committee and we are in the midst of something called health care with Ways and Means and Energy and Commerce. I was hoping that there would be no other Democrat here, because I want so much for Senator Conrad Burns to take the gavel and act as Chair of this meeting.

And I do that because his history is long and strong in this specific subject. I do it second because he is an admirable, fair, good, principled public person. And I do it third because he is my friend. And when you have got a friend and you can just say this is something you have really been going after for a period of time and here are five people representing all aspects of the problem that you have been working on so hard, and then you can say they are all yours, Mr. Chairman, it feels good.

So, here you are. I have to literally leave and I apologize to you. I have got to go back to conference.

OPENING STATEMENT OF SENATOR BURNS

Senator BURNS [presiding]. Thank you, Mr. Chairman. You read that just like I wrote it. [Laughter.]

And I thank you for that. Thank you, Mr. Chairman, and I appreciate you holding this hearing today and I am sorry that you will not get to participate in a lot of it, but I know you have more pressing matters in areas in which you have a deep interest and have a long history. So, we wish you well in your endeavors today. It is a long and trying day. And again I thank you for holding this hearing.

When this committee originally considered this legislation, we did so with the belief that we were proposing the regulation of only those estimated 1 percent of fasteners sold in the United States that were designed for installation into highly critical applications. The focus on 1 percent and critical application seems to have been lost somewhere along the way.

If the mechanic fixing construction equipment or a farmer trying to fix his farm equipment faces fastener pricing that will drastically increase his costs, not only in the availability of the common bolts that are required to complete the repairs and also in other areas too, then we must give this legislation a second look. Many companies which sell fasteners in Montana—and the American Mining Congress with many members in Montana—have communicated to me their apprehension or fear of this law being implemented without just three minor statutory changes that do not appear to have any adverse effects on quality or public safety.

Two of those three recommendations have already been addressed in the House of Representatives and have been added to H.R. 820, the companion bill to S. 4. And today I would like to focus on that third leg of that stool.

There is a provision in the statute that prohibits commingling of different lots of fasteners from a fastener manufacturer through the distribution level. The taboo stops with the distributor. Contractors, mechanics, original equipment manufacturers of all varieties, Government facilities, and users may intermix at their discretion. However, when a fastener distributor sells a bolt in a container marked with a lot number, the traceability only goes with the box or bag. Once the container is discarded, so goes lot traceability.

The Fastener Advisory Committee recognized this situation and attempted to correct the problem in the regulations, but counsel for the Department of Commerce advised that statutory changes were needed. And I have learned that the vast majority of fastener buyers and users neither ask for nor desire full lot traceability. Therefore, the additional cost to small business and the competitive hurdles that this small provision will create, in my estimation, should be eliminated.

I am convinced that after this law has been implemented, all regulated fasteners of the same size and grade that have been laboratory tested and certified to be in full compliance with their respective standards and specification will be completely interchangeable. If this provision cannot be changed and my colleagues feel that true lot traceability should prevail, I will suggest that all regulated fasteners be marked with their respective lot number along with the actual manufacturer's insignia, and that commingling be prohibited at the OEM and user levels.

Do we really have true lot traceability in the Fastener Act now, and if not, do we really need it? And, of course, that is what we will try to discover today, and I appreciate those of you who have taken time out of your busy life to come here and offer testimony with regard to this. And I appreciate the insight that you can give I think not only to this side of the issue, but on both sides.

I would like to listen to your testimony now and I would start out with Mr. David Edgerly, who is Deputy Director of Technology Services of NIST, National Institute of Standards and Technology, from Gaithersburg, MD. And thank you for coming, Mr. Edgerly.

STATEMENT OF DAVID E. EDGERLY, DEPUTY DIRECTOR OF TECHNOLOGY SERVICES, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, DEPARTMENT OF COMMERCE

Mr. EDGERLY. Thank you very much, Mr. Chairman. It is a pleasure to be here this morning and to have the opportunity to report on the status of the regulations for implementing the Fastener Quality Act of 1990. I will also, Mr. Chairman, provide the committee with some background on the recommendations of the Fastener Advisory Committee to both the Director of the National Institute of Standards and Technology and to the Secretary of Commerce to amend the act to make it cost effective and workable.

As you are well aware, the House passed the National Competitiveness Act of 1993, which is H.R. 820, which contained several amendments to the Fastener Quality Act. I will discuss these amendments briefly as they relate to the overall recommendations of the advisory committee. The act, as you mentioned, was signed into law in 1990 and requires the Department of Commerce to establish programs to ensure that certain types of industrial fasteners conform to the standards to which they are represented as conforming.

Principal among the Department and NIST's duties are the establishment of a program to accredit laboratories both domestic and foreign to test fasteners using our existing National Voluntary Laboratory Accreditation Program; second, to establish a program for approving private-sector bodies and organizations to accredit laboratories to test fasteners; and, third, to establish a program by the Patent and Trademark Office which is very similar to registration of trademarks, for recordation of insignias of manufacturers and private label distributors of covered fasteners.

Pursuant to the act, specifically section 14, the Department chartered the Fastener Advisory Committee in February 1991. That committee consists of 15 members representing fastener manufacturers, importers, distributors, end-users, independent laboratories, and standards organizations, and is chaired by Mr. Melvin Green, who is the associate executive director of the American Society of Mechanical Engineers.

I am also pleased, Mr. Chairman, that testifying with me today are three members of that committee. On my right, Steve Schonholtz, George Wasmer, and Bill Hayes. All three of these gentlemen have been very useful and influential in helping the committee, the Department, and NIST in its deliberations.

The act directs the Commerce Secretary and my Director at NIST to consult with the committee prior to promulgating regulations, and we have done just that, Mr. Chairman. We have worked very closely with this committee in drafting what is now about 120 pages of implementing regulations.

The committee has met eight times in open session and has amassed more than 2,000 pages of recording transcript in some 14 volumes of public record. I mention this, Mr. Chairman, simply to emphasize that a great number of issues were raised by the committee that NIST considered were extremely important to resolve before coming to a workable set of implementing regulations.

For example, there was considerable initial confusion and debate, as has been mentioned by you and by Senator Rockefeller, as to the exact percentage of fasteners that were intended to actually be covered under this law. In the Senate report on the original fastener bill which came through this committee, Mr. Chairman, there was mention, "that every year approximately 200 billion bolts, screws, and other fasteners are sold in the United States. Of these approximately 1 percent are special high strength fasteners which carry grade marks and are designed for and used in critical applications where failure of a fastener could jeopardize public safety."

As you mentioned, the 1-percent figure relating to high strength critical application fasteners was used throughout the legislative history as the intended population of fasteners to be covered. However, the general opinion among the advisory committee, industry, and NIST, through our regulatory impact analysis, is that at least 25 percent of all fastener types are covered under this law. An independent survey that was done by the Fastener Industry Coalition and also by the Fastener Industry News, which is a media paper, estimated an average of some 54 percent of current fastener types that would be affected under the act.

In working with NIST and the Department to develop implementing regulations, the advisory committee recommended several technical amendments, which you have referred to, to make the act both workable and cost effective. These amendments are discussed in a report of the advisory committee's cost-effectiveness working group which, Mr. Chairman, I am making available to this committee. This report, which was unanimously adopted by the advisory committee in March of this year and accepted by NIST, provides background on the nature of the amendments being requested and the potential economic consequences of implementing final regulations without amending this law.

The three amendments that the advisory committee considers critical and that you have mentioned include, first, allowing tests of chemical composition of fasteners to be carried out on the raw materials rather than upon finished lots of fasteners. Second, allowing industry to sell fasteners with minor deviations following procedures laid down in applicable standards. And third, as you mentioned, the subject of today's discussion, allowing distributors to commingle like fastener lots.

The estimated annual compliance costs to industry if the proposed technical amendments are not enacted, as has already been mentioned, range from approximately $500 million to what we now consider to be upwards of $1.5 billion for a $6 billion U.S. industry which, as I think is well known, is predominately a small-business oriented industry. The estimated annual compliance costs with the amendments would be approximately $20 million or lower.

The amendments passed by the House in H.R. 820 are consistent with the advisory committee's recommendations with respect to mill heat and with respect to nonconforming fasteners, but, as you mentioned, do not consider anything with respect to commingling. The first two amendments appear to us to be oversights of interpretations that did not come to light during passage of the act. The recommended amendment allowing distributors to commingle on a voluntary basis and under control conditions is intended to reduce costs associated with maintaining segregated fastener lots by small businesses whose customers, as you mentioned, neither need nor request lot traceability.

The administration, Mr. Chairman, supports the fastener amendments that were passed by the House in H.R. 820, and is encouraged by the interest of this committee in considering similar action in the Senate.

In August 1992 NIST published draft implementing regulations for public comment. Over 300 letters were received by NIST during the comment process. Some 225 of these letters supported enactment of the advisory committee's recommended amendments to the act. All of the comments received, Mr. Chairman, have been analyzed, and NIST has worked with the committee in drafting final regulations that incorporate changes made as a result of the public comment process. We have referred these final regulations now to the Office of Secretary for both departmental and administrative review, and we are ready to prepare the regulations, Mr. Chairman, to implement the amendments contained in H.R. 820 on an expedited basis.

This completes my testimony, Mr. Chairman. I would be pleased to answer any questions that you may have. Thank you.

[The prepared statement of Mr. Edgerly follows:]

PREPARED STATEMENT OF DAVID EDGERLY

Mr. Chairman and Members of the Committee, I am here this morning to report on the status of regulations for implementing the Fastener Quality Act of 1990 (Public Law 101-592). I also will provide background on the recommendations of the Fastener Advisory Committee to the Director of the National Institute of Standards and Technology (NIST) to amend the Act to make it cost effective and workable. As you know, the House passed The National Competitiveness Act (H.R. 820) on May 19, 1993, which contained several amendments to the Fastener Quality Act. I will discuss these amendments as they relate to the overall recommendations of the Fastener Advisory Committee.

The Fastener Quality Act was signed into law in November of 1990, and requires the Department of Commerce to establish programs to ensure that certain types of industrial fasteners conform to the standards to which they are represented as conforming. Principal among the Department's responsibilities are: 1) the establishment of a program to accredit laboratories (both domestic and foreign) to test fasteners using NIST's existing National Voluntary Laboratory Accreditation Program (NVLAP); 2) the establishment of a program for approving private sector organizations to accredit laboratories to test fasteners; and 3) the establishment of a program by the Patent and Trademark Office (PTO), similar to registration of trademarks, for recordation of insignias of manufacturers and private label distributors of covered fasteners.

Pursuant to section 14 of the Act, the Department chartered the Fastener Advisory Committee in February 1991. The Committee consists of 15 members representing fastener manufacturers, importers, distributors, end-users, independent laboratories, and standards organizations, and is chaired by Mr. Melvin Green, Associate Executive Director, American Society of Mechanical Engineers (ASME). The Act directs the Commerce Secretary and NIST Director to consult with the Committee prior to promulgating regulations under the Act. Consistent with this requirement, NIST has worked closely with the Committee in drafting implementing regulations.

The Committee has met eight times in open session and has amassed more than 2,000 pages of recorded transcript in some 14 volumes of public record. I mention this to emphasize that a number of issues were raised by the Advisory Committee that MST considered were important to resolve in drafting a set of workable implementing regulations. For example, there was considerable initial confusion as to what percentage of fasteners were actually covered by the Act. In the Senate Report on the original fastener bill (H.R. 3000), which came through this Committee, there was mention that:

> "Every year approximately 200 billion bolts, screws, and other fasteners are sold in the United States. Of these, approximately one percent are special high-strength fasteners which carry grade marks" and are "designed for, and used in, critical applications where failure of a fastener could jeopardize public safety."

This 1 percent figure was used throughout the legislative history as the intended population of fasteners to be covered. The general opinion among the Advisory Committee and industry is that up to 25 percent of all fastener types may be covered under the Act. An independent survey by the Fastener Industry Coalition and Fastener Industry News estimates an average of 54 percent of current fastener types will be affected under the Act.

In working with MST to develop implementing regulations, the Advisory Committee recommended several technical amendments to the Act to make it cost effective and workable. These amendments are discussed in a Report of the Advisory Committee's Cost Effectiveness Working Group which, Mr. Chairman, I am making available to this Committee. This Report, which was unanimously adopted by the Advisory Committee in March of this year, and accepted by MST, provides background on the nature of the amendments being requested and the potential economic consequences of implementing final regulations without amending the Act.

There are three amendments the Advisory Committee considers critical. They include: 1) allowing tests of the chemical composition of fasteners to be carried out on raw materials, rather than upon finished lots of fasteners; 2) allowing industry to sell fasteners with minor nonconformances following procedures laid down in applicable standards; and 3) allowing distributors to commingle like fastener lots. The estimated annual compliance costs to industry, if the proposed technical amendments are not enacted, range from approximately $500 million to $1.5 billion for a $6 billion U.S. industry. The estimated annual compliance costs with the amendments would be approximately $20 million. The amendments passed by the House in H.R. 820 are consistent with the Advisory Committee's recommendations outlined in 1) and 2) above.

The first two amendments appear to NIST to be oversights of interpretations that did not come to light during passage of the Act. The recommended amendment allowing distributors to commingle like fastener lots on a voluntary basis, and under controlled conditions, is intended to reduce costs associated with maintaining segregated fastener lots by small businesses whose customers neither need nor request lot traceability. The Administration supports the fastener amendments passed by the House in H.R. 820, and is encouraged by the interest of this Committee in undertaking similar action in the Senate.

In August 1992, NIST published draft implementing regulations for public comment Over 300 letters were received during the public comment process. Some 225 of these letters supported enactment of the Advisory Committee's recommended amendments to the Act. All of the comments received have been analyzed and NIST has worked with the Advisory Committee in drafting final regulations that incorporate changes made as a result of the public comment process. NIST has referred these final regulations to the Office of the Secretary for Departmental and Administrative review. We are ready to prepare the regulations to implement the amendments contained in H.R. 820 on an expedited basis.

Mr. Chairman, this completes my testimony. I will be pleased to answer any questions the Committee may have.

Thank you.

Senator BURNS. Thank you, Mr. Edgerly. We welcome Mr. George Wasmer this morning, the president of Lake Erie Screw Corp. of Cleveland, OH. We thank you for coming.

STATEMENT OF GEORGE WASMER, PRESIDENT, LAKE ERIE SCREW CORP., REPRESENTING THE INDUSTRIAL FASTENERS INSTITUTE

Mr. WASMER. Thank you, Mr. Chairman. I am also a past chairman of the Industrial Fasteners Institute, and that is who I will be representing this morning. I am going to present a statement to this subcommittee that represents that position.

The IFI represents 120 companies, including most of the major manufacturers of industrial fasteners in North America. These manufacturers supply fasteners to automotive, truck, off-road construction, farm equipment, aerospace, and military industries.

The IFI has fully supported Public Law 101–592 since its inception, but we feel that amendments are necessary to ensure that the law will be realistic and accomplish its objectives and prevent unreasonable cost which make the industry noncompetitive in a difficult global environment. We wholeheartedly endorse the following two amendments to the law as approved by IFI member companies and passed by the House of Representatives as part of the Walker amendment.

Chemistry issue. A revision is needed to the Public Law 101–592 that allows the chemistry of a finished lot of fasteners to be based on the mill heat certification provided by the raw material manufacturer as long as the fastener manufacturer maintains lot traceability to the given heat of material used in the manufacture of that lot.

The chemistry of the raw material does not change during production sequences. Therefore, all testing of chemistry of finished fastener lots would be redundant as long as lot traceability to the mill heat of the raw material has been maintained. A manufacturer might reasonably produce from 7 to 200 or more different lots per given mill heat. To conduct a chemical analysis this many times or more for the same heat of material is wasteful and offers no increase in value and contributes nothing in achieving the objectives of the law.

Minor nonconformance issue. A revision is needed in Public Law 101–592 to allow the sale of fasteners having minor dimensional nonconformance which do not affect the fit, form, or function of the fastener in its intended application.

Only the user/installer should have the right to accept or reject products having minor dimensional nonconformance. Only the user/installer knows the intended application. No purchaser for resale should have the right to accept or reject these products, since there is no adequate information or basis for accepting or rejecting them based on fit, form, or function in a given application.

In manufacturing, variations is a result of differences in machines, tools, material, gauges, and, of course, people. Those in manufacturing are fully aware that no two things are alike, even if they are supposedly exactly alike. Statistical process control—SPC—is a powerful tool in the war against variation. It is not the complete answer, only part of a comprehensive effort to produce parts without variation.

Nonconforming does not mean unfit for use. Since only the user/installer is familiar with the application, he alone is capable of determining that the nonconforming characteristics will not compromise the performance of the fastener or the integrity of the joint.

Without the two amendments that were passed by the House of Representatives, unrealistic costs would have made it impossible to manufacture products in a competitive manner. However, these two amendments will go a long way in helping the domestic fastener industry comply with the intent and the spirit of 101–592.

All reputable and reliable manufacturers as a normal practice—as a normal practice ship unique lots of products which are not commingled, which have a lot number assigned as a product enters a manufacturing process and are traceable to a specific mill heat of steel.

It has been estimated that the chemistry issue and the minor nonconformance issue taken together without the House amendments would add costs exceeding $1.2 billion annually to fasteners and provide no real increase in value.

These two amendments provide the law with a high degree of realism and workability without in any way impairing the concepts of accountability, traceability, and responsibility which are the foundations of this law. The amendments as passed recognize the value of and promote the continued use of consensus voluntary standards which are the basis for technically sound mechanical fasteners.

The issue of commingling and related costs is associated with warehousing and distribution. This issue can best be addressed by the distribution industry while maintaining the concern for traceability, which is one of the foundations of the law.

We appreciate the opportunity to put forth our views before this subcommittee. Thank you very much, Mr. Chairman.

[The information referred to follows:]

THE CHEMISTRY ISSUE

A. Statement of Issue

A revision is needed in Public Law 101-592 to allow the chemistry of a finished lot of fasteners to be based on the mill heat certification provided by the raw material manufacturer as long as the fastener manufacturer maintains lot traceability to the given heat of material used in the manufacture of that lot.

B. Reason for Change

The fastener manufacturer cannot change the chemistry of the raw material. Therefore, all testing of chemistry for finished fastener lots would be redundant as long as lot traceability to the mill heat of the raw material has been maintained. A manufacturer might reasonably, for example, produce, depending upon the product, from 7 to 200 lots or more per given mill heat. To repeat the chemistry 100 plus times for the same material is total waste which offers no value added and has no particular impact on the purposes or objectives of the Public Law. This analysis attempts to quantify the cost implications in support of this needed revision to the Law.

C. Discussion

Materials for the manufacture of mechanical fasteners are customarily ordered by AISI grade designations directly from the raw material manufacturer or the wire producer. Typical grades are defined in consensus standards such as SAE J403 and SAB J4o4 which are found in the annual handbooks of the Society of Automotive Engineers. Orders are furnished based on a mill heat of material which is then used to produce lots of fasteners. A survey of manufacturers of fasteners indicates that from a given mill heat of material anywhere from 6 to 1,000 lots of fasteners may be produced.

Lots sizes depend upon a number of factors including the product produced, diameter, length and method of manufacture. This is reflected in the vast differences reported in average weight of lots produced. Range reported varied from 25 lbs. per lot on average to 27,000 lbs. on average. The use of just-in-time and statistical process control appears to have reduced the average lot size significantly in recent years. Smaller lots facilitate higher degrees of uniformity not only in dimensional characteristics but also in mechanical properties which may be achieved through cold forming and/or various thermal treatments.

Based on those products falling within the scope of the Law, lots produced per year for given manufacturers ranged from 62,000 lots/year to 100 lots/year.

Alternate Approach A

Based on the Department of Commerce February 1983 analysis for national security, it appears that 1979 offers the maximum consumption and thus the "worst case" scenario. In 1979 the report data included:

Consumption:	
Pieces of bolts & large screws	$15{,}749.2 \times 10^6$
Nuts	$9{,}940.9 \times 10^6$
Total pieces consumed in 1979	$25{,}640.1 \times 10^6$

The figure was then adjusted upward: by the addition of 10 percent for additions of studs and 5 percent for hardened steel washers. This provided a total of 29,543.6 million pieces which fall under the public law slope. Typically, lot sizes range from 1,000 pieces to 68,000 pieces.

"Worst Case" cost scenario: 29,543,600,000 pieces÷1,000 pieces/lot x $65/lot=$1,920,334,000 to do chemistry for each lot.

"Best Case" cost scenario: 29,543,600,000 pieces÷68,000 pieces/lot x $65/lot=$28.240.205 using a weighted average of 20,000 pieces/lot.

29,543,600,000 pieces÷20,000 pieces/lot x $65/lot=$96,016,700

Worst case added industry cost	$1,920,334,000
Best case added industry cost	$28,240,205
Weighted average industry cost	$96.016.700

It should be noted that the chemistry issue out of all proportion will have the most significant impact on the short run producer who is generally a "small business" manufacturer. For example, those companies which specialized in hot forging of small lots—100 pieces or less—will probably see their cost increase by 100 percent. Long run producers on the other hand, who are often larger manufacturers would be expected to experience increases below 10 percent. Aerospace fastener manufacturers will also be significantly impacted since their production lots are small to achieve least variance in the product produced.

Alternate Approach B

IFI survey data reveals that on average a company might ship 17,655 lots/year. If this average is valid and there are 250 companies manufacturing fasteners then:

17,655 lots/year/company x 250 companies x $65/lot=$286,901,875/year

Alternate Approach C

Issue I estimated that 2,802,214,260 lbs of product consumed would fall under the public law.

Based on data extracted from the Department of Commerce February 1983 study for national security, it is estimated that 75.31 percent would be bolts & large screws by weight and 24.69 percent would be nuts.

From IFI data: average lot of bolts & larger screws=2,439#; average lot of nuts=3,975#; and average lot of washers=5,300#.

Assume that 75 percent of total weight is bolts/large screws, 24 percent is nuts and the remaining 1 percent is washers:

# bolts/large screws=2,802,214,260 x .75=2,101,660,695
# nuts=2,802,214,260 x .24=672,531,422
# washers=2,802,214,260 x .01=28,022,143

Total lots	
Bolts/large screws	861,690
Nuts	169,190
Washers	5,287
Total	1,036,167
Times $65/lot	$67,350,855

D. Conclusions

(1) Additional costs for doing the chemistry of each lot will vary between $28 million and $1.9 billion based on estimating, available data and IFI surveys.

(2) In all probability the costs will fall within the $100 million to $286 million range. Costs will continue to rise as lot sizes are expected to fall still further as SPC requirements are increased still further i.e. to reduce variation in such characteristics as hardness and tensile strength.

(3) Smaller producers or those specializing in small lots and/or aerospace fastener producers will be gravely impacted i.e. 100 percent increase in costs because of the need to do a chemistry for each lot.

(4) Congress should take appropriate legislative action to revise Public Law 101-592 to eliminate excessive costs having no value added. This may best be accomplished by continuation of existing practice for lot traceability to a given mill heat of material whose chemistry has been certified by the raw material producer.

THE MINOR NONCONFORMANCE ISSUE

A. *Statement of Issue*

A revision is needed in Public Law 101-592 to allow the sale of fasteners having minor nonconformances which will not effect the fit, form or function of the fastener in its intended application. The user/installer should have the right to accept or reject products having minor nonconformance. Only the user/installer knows the intended application and has adequate information or basis for accepting or rejecting fasteners based on fit, form and function in a given application.

For clarification:

Fit: A general term used to signify the range of tightness which may result from the application of a specific combination of allowances and tolerances in she design of mating parts.

Actual Fit: The actual fit between two mating parts is the relation existing between them with respect to the amount of clearance or interference that is present when they are assembled.

Form: The form describes the fastener geometry.

Function: The function is that task which the fastener has been designed and manufactured to perform.

B. *Reason for Change*

In manufacturing, variation is the result of differences in machines, tools, material, gages, fixtures, environment and people. Those in manufacturing are fully aware that: "no two things are alike" even if they are supposedly exactly alike. Statistical process control is a powerful tool in the war against such variation, but it is not the complete answer, but part of a comprehensive effort to achieve parts without variation.

Non-conforming does not mean unfit for use. Since the user/installer is familiar with the application he is capable of determining that the nonconforming characteristic(s) will not compromise the performance of the fastener or the integrity of the joint.

Mechanical fasteners have always been manufactured and sold on the basis of fit, form and function. Standards have historically recognized nonconformances and as an example Paragraph 2.9 from B18.18.2M is repeated here for convenience:

EXTRACT FROM ASME B18.18.2M THROUGH B18.18.4M

> **2.9 Disposition of Nonconforming Materials or Parts**
>
> Records of disposition shall be maintained in accordance with 2.4.
>
> **2.9.1 Manufacturer's Options.** The manufacturer has the choice of the following options in the disposition of those materials or parts which have been found to contain discrepancies within his plant.
>
> (a) They may be scrapped.
>
> (b) They may be 100 percent sorted and all nonconforming parts removed.
>
> (c) They may be reworked or reprocessed to correct the nonconforming characteristic(s).
>
> (d) The customer may be informed of the rejectable items and his advice requested on their disposition. If the customer considers that the degree to which the characteristic(s) deviate from specified requirements will have no significant effect of the performance of the parts in their service application, the customer may authorize release of the parts or materials for completion of production or for shipment as applicable.
>
> **2.9.2 Customer's Options.** The customer shall establish agreement with the manufacturer on one of the following options for the disposition of those materials or parts which have been rejected after receipt from the manufacturer.
>
> (a) They may be scrapped.

(b) They may be 100 percent sorted and all nonconforming parts removed.

(c) They may be reworked or reprocessed to correct the nonconforming characteristic(s).

(d) If the customer considers that the degree to which the characteristic(s) deviate from specified requirements will have no significant effect of the performance of the parts in their service application, the customer may authorize release of the parts or materials for use and advise the manufacturer.

(e) They all may be returned.

2.9.3 Reinspection. All pieces which have been sorted and/or reworked in accordance with 2.9.1 or 2.9.2 shall be resubmitted for lot sampling and inspection in accordance with 2.7 for the characteristic(s) found nonconforming and all other characteristics which would be affected by the repair or reprocessing operation(s). If no parts in the sample inspected are found nonconforming, the material may reenter the production flow or may be approved for delivery or use as applicable.

Numerous commercial and military documents provide for a cost effective disposition system for nonconforming products when a minor nonconformance does not adversely affect the health and safety, performance, interchangeability, reliability, maintainability or effective use or operation.

Unless the public law is revised to acknowledge these established practices, which are based upon manufacturing realities, needless and costly rejections will result from products which are currently fully acceptable under the provisions of the standards and perform as intended.

C. Discussion

The United States consumes annually based on a "worst case scenario" about 29,543,600,000 fasteners which would fall under the public law (see Department of Commerce report of February, 1983 and/or issue I developed by the FAC). This would approximate 1,036,167 lots of fasteners.

Based on process capability study techniques described in Section 8.4 of the IFI publication Recommended Practices for Statistical Process Control a C_pK value is determined which describes the ability of that process to produce products whose dimensions are within specification limits.

Alternate Approach A

A C_pK value of 1.0 allows for a variation within specification limits. A value of 1.33 or greater says the process is capable and at least 99.97 percent (+ or —4 sigma) of the process output or product will be conforming to specification within its limits. A value of C_pK less than 1.0 is a process which is not capable and its variation exceeds specification limits.

Let us assume that the manufacturing process has a C_pK of 1.33. This tightly controlled operation is achieved when 4 standard deviations are contained between the process average and the closest specification limit. Thus if an inspection of a single characteristic—say width across flats is inspected based on continuous data approximately 99.97 percent would be within specification limits. Based on one million pieces the nonconformance range would be from: 0 to 63 pieces per million.

However, let's take a look at what happens when you check 9 characteristics which might include for a cap screw: 1) width across flats; 2) width across corners; 3) head height; 4) body diameter; 5) wrenching height; 6) thread length; 7) transition thread length; 8) fillet length; and 9) fillet radius.

In this case, reliability engineering will require that the decimal fraction for expected yield be multiplied times itself for each feature in order to assess total expected yield or the number of good pieces i.e. no nonconformances.

This when completed suggests that the expected nonconformances range from: 0 to 570 parts per million. Thus with a C_pK value of 1.33 it might not be unexpected to find 16 or 17 parts nonconforming in a process well within specification limits and in an average lot of 29,543 pieces. This far exceeds the typical lot sizes found in aerospace or many hot forging operations. While the C_pK value for each respective characteristic may vary for simplicity the value of 1.33 has been chosen to use for all characteristics.

It should be noted that a typical cap screw has 23 variables which the present law requires measured and certified. With 23 characteristics to certify under the provisions of the existing law, and interpretation of it, the range of nonconformance would rise from 0 to 1,457 parts per million. In the average lot of 29,543 pieces up to 43 nonconforming fasteners would be present.

Information provided by manufacturers indicates that based on typical $C_pK=1.33$ upwards of 5.5 percent lot rejections would result. Thus, if 1,036,167 lots fall under the law, about 54,000 lots would have to be scrapped. The cost would be

$285,000,000 per year based on $5,000 per lot which has been used as a typical number for commercial product.

However, the dimensional considerations are only half of the issue. To fully understand the implication of this rigid interpretation the chemistry, mechanical and performance characteristics must also be examined. These include:

Tensile strength
Hardness
Yield
Torque-tension
Decarburization
Surface discontinuities
Salt spray resistance
Proofload
Fatigue
Chemistry
Hydrogen embrittlement
Coating thickness

Not included in this analysis, but commonly found additionally in some applications are shear/double shear, macrostructure, microstructure, plating, adhesion and stress rupture/stress corrosion.

The first four are variables and considered based on continuous data while the others are attributes based on discrete data (generally pass/fail). Industry data reveals that four of the seven attributes have a risk factor. The four variables have been examined using the industry average $C_pK=1.33$.

Based on the above considerations, the overall risk for each one million parts produces would be from 0 to 30,906 nonconforming fasteners. Based on the four attributes would yield expected nonconformance from 0 to 29,196 parts/million and the variables would yield expected nonconformance from 0 to 1,710 parts per million.

In summary, the average lot would have expected nonconformance from zero to 915.8 pieces.

The only way this could be reduced would be to raise the average C_pK value of the industry. Since C_pK values are based on process control, it would require significant financial investment. Many companies are thought to be operating below a C_pK of 1.33 and the rate of lot rejections in these plants could be catastrophic.

Alternative Approach B

Industry data based on historical accumulation of evidence indicates that about 4 percent of the lots manufactured will have detected dimensional nonconformance. If 1,036,167 lots are included under the law, then 41,447 lots would be rejected. However, because the history accumulated is primarily based on fit, form and function, it is expected that certification of all dimensions will lead to a much higher lot rejection rate. Estimated only that this rejection rate would double to 81,000 lots based on an average weight of 2,704 pounds/lot.

Assuming an average value of about $0.80/pound:

Best Case—41,447 lots X 2704 pounds/lot X $0.80/pounds	$89,658,150
Worst Case—82,000 lots X 2704 pounds/lot X $0.80/pounds	$177,382,400

Assuming an average value of $1.20/pound:

Best Case—41,447 lots X 2704 pounds/lot X $1.20/pound	$134,487,236
Worst Case—82,000 lots X 2704 pounds/lot X $1.20/pound	$266,073,600

D. Summary

A range of zero to 1,457 nonconforming parts are produced per million pieces based on current fastener manufacturing average capability: i.e. $C_pK=1.33$.

In an average lot of 29,196 pieces up to 915 nonconforming parts could be present.

Lot rejection costs will range from $89,658,150 to $285,000,000 annually unless nonconformances now recognized in existing standards prevail, such as paragraph 2.9 of B18.18.2M. Probably these rejection costs will double when parts are plated because of the wide swings in coating thickness present in the existing process.

A revision in Public Law 101-592 is required to assure that provisions of existing standards and specifications will clearly prevail in terms of what inspection and testing will be required for conformance to the law.

LETTER FROM CHARLES J. WILSON, DIRECTOR OF ENGINEERING, INDUSTRIAL FASTENERS INSTITUTE

MAY 14, 1993.

Mr. DAVID EDGERLY,
NIST
Gaithersburg, MD 20899

DEAR DAVID, In response to your mailing of April 18, 1993, I would like to submit the following comments:

> I am very much opposed to the regulations moving forward without amendment to the law. These regulations represent a real and significant threat to the consensus standards developments within ASTM, SAE, ASME and WI.

Clearly, the law truncates the standards which have been written through the consensus of users, producers, government and other interested parties over a period of many years. These standards have given the United States a technological lead over the rest of the world. To blindly and foolishly destroy or at best seriously weaken this system is far beyond my comprehension. It is almost saying that the standards are at fault and created this problem of substandard and/or counterfeit fasteners. This of course is wrong and in fact it is my unshakable belief that Congress intended to support the consensus standards system—not destroy it! Far worse, these regulations will either bring U.S. industry to a halt or at best cause it to loose a billion dollar competitive edge as it struggles to survive in a global economy. In effect it's a billion dollar gift to industry off-shore to further erode the United States industrial base. While I have great admiration for the job you have done, I know how I feel and the misgivings which continue to he so worrysome.

My comments regarding specific sections include the following:

Section 280.2 Definitions.—This section should include a definition for minor alterations as defined by the Committee. Without this definition, serious questions will be sure to arise in future disputes.

Section 280.9.—The need to inform the client before the fact for subcontracting of testing will delay and serves no useful purpose since the original testing contractor is fully responsible.

Section 280.12.—Salt spray testing often required for plating evaluation will cause a significant bottleneck for U.S. industry. Typically, salt spray testing may require 1,000 hours or at least 42 days to complete. This will backup plated parts beyond all comprehension and cause just in time concepts to be overturned in many major user facilities.

Section 280.401.—This section should be revised to require the secretary to publish in the Federal Register the basis of any proposed agreement to allow accrediting of foreign laboratories. Good and accountable government should require a process of public disclosure and comment opportunity.

Section 280.7(a).—Should be revised to make clear that all original observations calculations and derived data do not have to be retained. This defeats the concept of electronic storage, is costly and unnecessary and generally contradicts the wishes of the Fastener Advisory Committee. The section requires that enough or adequate information be retained on the test report to allow the duplication of the test at a later date. This is all that should be required.

Section 280.900.—The last sentence in item (b) should be deleted. This is anticipated and dealt with by the applicable standards. The regulations should not arbitrarily attempt to rewrite those issues already covered within the applicable standards.

Section 280.7(b).—This section is not clear and does not distinguish between the original test report and lot number and the test report after alteration and the newly assigned lot number. Both were to be retained as recommended by the Fastener Advisory Committee.

Section 280.12.—This section should be revised to make clear the assignment of a new lot number and the retention of this lot number and the original lot number to assure full traceability.

Section 280.602(k).—Should define as a prohibited act the failure to mark a significantly altered fastener and the assignment of a new lot number and retention of the original lot number.

Sincerely,

CHARLES J. WILSON,
Director of Engineering.

Senator BURNS. Thank you, Mr. Wasmer.

Mr. Steven Schonholtz, president of Gardenbolt International Corp. in Sayreville, NJ. Steven, thank you for coming this morning.

STATEMENT OF STEVEN R. SCHONHOLTZ, PRESIDENT, GARDENBOLT INTERNATIONAL CORP., REPRESENTING THE AMERICAN ASSOCIATION OF FASTENER IMPORTERS

Mr. SCHONHOLTZ. Thank you. I also represent the American Association of Fastener Importers. Thank you for inviting me here today and giving me the opportunity to express an importer's view on Public Law 101–592 and the impact of its implementation.

The fastener industry has been placed under a microscope since this legislation was introduced many years ago. As a result, purchasing agents and engineers at many major end-users have become more specific in their requirements and more critical in choosing their vendors. This new concentration on quality and proper application by end-users is the most predominant change in our industry in a very, very long time.

The end-user is the only one in the distribution chain that knows where and how a fastener will be used. Consequently, only the end-user can reasonably define fastener specifications and requirements for critical applications.

The fact that more attention is being paid to quality has had significant implications back up the ladder of distribution. Today, we find more distributors with quality control labs, more importers with labs and/or on site inspection facilities, and more factories with testing equipment.

Five years ago, some factories were manufacturing high strength product without embossing their trademark on the bolt, thus leaving absolutely no traceability. In the last 3 years, I have not seen or heard of a single high strength bolt manufactured to a standard that did not have a manufacturer's identification on the head.

The foreign manufacturers, especially in Taiwan, Japan, and Korea, have had a keen interest in the progress of this legislation. Members of the fastener industry, including myself, have given numerous presentations in Taiwan, which is a leading country of fastener exports, to as many as 300 interested parties.

As a result, many of these foreign factories have already registered their trademark with the Patent and Trademark Office, have received accreditation from the International Standards Organization or the American Association of Laboratory Accreditation, and anticipate becoming accredited by NVLAP or the designated accrediting body. The world has become aware that quality sells, and it is now no different in the industrial fastener arena.

My group, the American Association of Fastener Importers, has been involved with this legislation since its inception as H.R. 2020. Throughout the entire process, beginning with the initial writing and continuing through the rewrite stages of the act, the AAFI was consulted and kept informed by Senate and congressional staff members.

By using our expertise and being sensitive to the position of foreign manufacturers, I can safely say this act is not a protectionist bill. The requirements in the bill such as foreign laboratory accreditation by Government and independent accrediting bodies, registration of foreign manufacturers' head marks, lot traceability requirements, and certification documentation, are all consistent with those required by the domestic manufacturers.

The authors of the act set out to create a level playing field, and as far as the major manufacturing segments of the industry are concerned, they have succeeded. Consequently, the foreign manufacturers and importers of these products require the same amendments to the bill that the domestic manufacturers require—those that George Wasmer just spoke about.

The current costs to implement the act that were defined in the regulatory impact study and further examined in the Fastener Advisory Committee report by its Cost Effectiveness Task Group are astounding numbers, and much larger than anticipated by those of us that have worked on this legislation for the past 5 years.

The importers and domestic manufacturers who gave their blessing to the bill when it was going through the House had no idea that interpretations by NIST counsel of certain provisions would result in the potential catastrophic compliance costs.

The two specific points that would cause these significant cost increases are the discontinued practice of allowing manufacturers to use the chemistry certification of the raw material vendor and the discontinued practice of allowing existing standards and specifications to prevail in the sales of minor nonconforming parts, and what inspection and testing will be required for conformance to the law.

The two amendments to the act that were presented by the Honorable Congressman Walker in H.R. 820 and passed by the House of Representatives recognize these issues as the two most important points to all manufacturers of fasteners. These amendments, if enacted, would allow all manufacturers, whether foreign or domestic, to comply with the act without being discriminatory to either the small manufacturer or the hot formed product manufacturer.

It is crucial that these small manufacturing entities stay in business to complete the flow of fastener products through the pipeline. Without these amendments, only the largest manufacturers, at great expense, could afford to test chemistry of raw material themselves or absorb material that is functionally acceptable but would be obsolete under the act.

By agreeing to the Walker amendments, the House has heard the words of all manufacturers both large and small, and has reacted to the exorbitant cost problem created by these unnecessary provisions in the act. These changes have been accepted by the House because they can significantly reduce the ultimate cost to end-users without compromising the intention of the act, which is to protect public safety and provide customers with greater assurance that fasteners meet their stated specifications.

However, with all these positive changes for manufacturers, the House has omitted from its amendments the change necessary to allow distribution to affordably function within the regulations of the act. We, the importers and manufacturers, are very concerned that the act must be changed in support of distribution sales. Distributors must be protected in the channel of distribution.

Importers and domestic manufacturers would be imprudent to think they could service the needs of the vast market directly without the benefit of distribution in the middle to handle the individual requirements and procurement procedures set forth by the end-user public.

We are not speaking of General Motors or Caterpillar in this case. We are speaking of the small wheelbarrow manufacturer in Alabama, or the mineworker in Montana, or the grain bin manufacturer in Illinois, or even the fellow at home that only needs two bolts from the hardware store to fix his broken awning.

These consumers need cost relief from the noncommingling provision in the bill, and so do their suppliers, the American distributor.

The United States would be forced to be less competitive if distribution cannot service their smaller customers in the most cost-effective manner possible.

The architects of the bill that so astutely heeded the advice of the manufacturers and importers need to now listen to the distributors as they try to work with the regulations to comply with the law. The distributors are in need of a specific amendment that can save millions of dollars and be the difference between some entities staying in business or failing.

The specific amendment requested by distributors is to waive the commingling prohibition provision for resellers provided their customers agree—that is a very important point. This amendment will not compromise quality or in any way undermine the intentions of the act.

The requested amendment is not intended to integrate grandfathered material—that is, material manufactured prior to the compliance date—with new certified material. The exemption request is only for resellers and not for manufacturers, importers, or private label distributors, thus assuring integrity of lots for those resellers and those end-users that do not wish to waive commingling. There is no risk to the user that parts are not manufactured to specifications or mixed with noncertified material.

Some have expressed thoughts that the waiver is a license to steal. The Fastener Advisory Committee has recommended language for regulation that negated this argument, as it required the end user giving written permission and consent to receive these integrated parts.

The end-user customer, whether it be General Motors, or Caterpillar, or any other user, will maintain its rights provided in the act to have full lot traceability available to them. If the end user chooses to waive complete lot traceability, he would have participated with his vendor in that decision. The amendment would make not having lot traceability be the choice of the customer, rather than having to make a choice to have lot traceability.

The AAFI fully supports the Fastener Advisory Committee for an amendment in S. 4 to include the provision for the option of waiving of the commingling prohibition for distribution, and feels very strongly that all three recommendations, and not just the two Walker amendments, are necessary to have an act that with all its good intentions has a chance to work in commerce.

None of these amendments compromise the intent for public safety, with the assurance to consumers that products are being made to specification.

The House, by voting for the Walker amendment, supported changing this act to help relieve the hammer of regulation as it falls on small manufacturers. It should also be consistent, and relieve the hammer as it falls on small distributors and their users. We hope the Senate can make this happen.

Thank you very much, and I will be happy to answer any questions.

[The prepared statement of Mr. Schonholtz follows:]

Prepared Statement of Steven R. Schonholtz

Thank you for inviting me here today and giving me the opportunity to express an importer's view on PL 101-592 and the impact of its implementation.

The Fastener Industry has been placed under a microscope since this legislation was introduced many years ago. As a result, purchasing agents and engineers at many major end users have become more specific in their requirements and more critical in choosing their vendors.

This new concentration on quality, and proper application by end users, is the most predominant change in our industry in a very long time.

The user is the only one in the distribution chain that knows where and how a fastener will be used. Consequently, only the end user can reasonably define fastener specifications and requirements for critical applications. The fact that more attention is being paid to quality has had significant implications back up the ladder of distribution.

Today, we find more distributors with quality control labs; more importers with labs and/or on site inspection facilities, and more factories with testing equipment. Five years ago, some factories were manufacturing high strength product without embossing their trademark on the bolt, thus leaving absolutely no traceability. In the last three years I have not seen or heard of a single high strength bolt manufactured to a standard that did not have a manufacturer's identification on the head.

The foreign manufacturers, especially in Taiwan, Japan and Korea have had a keen interest in the progress of the legislation. Members of the Fastener Industry, including myself have given numerous presentations in Taiwan, which is a leading country for fastener exports; to as many as 300 interested parties. As a result, many of these foreign factories have already registered their trademark with the Patent and Trademark Office (PTO), have received accreditation from the International Standards Organization (ISO) or the American Association of Laboratory Accreditation (AALA), and anticipate becoming accredited by NVLAP or the designated accreditation body. The world has become aware that quality sells and it is now no different in the industrial fastener arena.

My group, The American Association of Fastener Importers (AAFI) has been involved with this legislation since its inception as HR 2020. Throughout the entire process; beginning with the initial writing and continuing through the rewrite stages of the Act, the AAFI was consulted, and kept informed by Senate and Congressional staff members.

By using our expertise and being sensitive to the position of foreign manufacturers, I can safely say PL 101-592 is not a "protectionist bill". The requirements in the Bill such as foreign laboratory accreditation by government and independent accrediting bodies; registration of foreign manufacturers headmarks; lot traceability requirements; and certification documentation, are all consistent with those required by the domestic manufacturers. The authors of the Act set out to create a "level playing field" and as far as the major manufacturing segments of our industry are concerned, they have succeeded. Consequently, the foreign manufacturers and importers of these products require the same amendments to the Bill that the domestic manufacturers require. The current costs to implement the Act that were defined in the Regulatory Impact Study and further examined in the Fastener Advisory Committee (FAC) report by its Cost Effectiveness Task Group, are astounding numbers and much larger than anticipated by those of us that have worked on this legislation for the past five years.

The importers and domestic manufacturers who gave their blessing to the Bill when it was going through the House had no idea that interpretations by the National Institute of Standards and Technology (NIST) Counsel of certain provisions, would result in the potential catastrophic compliance costs.

The two specific points that would cause these significant cost increases were: the discontinued practice of allowing manufacturers to use the chemistry certification of their raw material vendor; and the discontinued practice of allowing existing standards and specifications to prevail in the sales of minor nonconforming parts and what inspection and testing will be required for conformance to the law.

The two amendments to the Act that were presented by the Honorable Congressman Walker in HR 820 and passed by The House of Representatives recognize these issues as the two most important points to all manufacturers of fasteners. These amendments, if enacted, would allow all manufacturers, whether foreign or domestic to comply with the Act without being discriminatory to either the small manufacturers or the hot forced product manufacturers.

It is crucial that these smaller manufacturing entities stay in business to keep a complete flow of fastener products in the pipeline. Without these amendments, only the largest manufacturers at great expense, could afford to test chemistry of raw material themselves or absorb material that is functionally acceptable, but would be obsolete under the Act.

By agreeing to the Walker Amendments, The House of Representatives has heard the words of all manufacturers, both large and small, and has reacted to the exorbitant cost problem created by these unnecessary provisions in the Act. These changes have been accepted by The House of Representatives because they can significantly reduce the ultimate costs to end users without compromising the intention of the Act; which is to protect public safety and to provide customers with greater assurance that fasteners meet their stated specifications.

However, with all these positive changes for manufacturers, The House of Representatives has omitted from its amenents the change necessary to allow distribution to affordably function within the regulations of the Act. We the importers and manufacturers are very concerned that the Act must be changed in support of distribution sales. Distributors must be protected in the channel of distribution.

Importers and domestic manufacturers would be imprudent to think they could service the needs of the vast market directly, without the benefit of distribution in the middle, to handle the individual requirements and procurement procedures set forth by the end user public. We are not speaking of GENERAL MOTORS or CATERPILLAR in this case, we are speaking of the small wheelbarrow manufacturer in Alabama, or the mine worker in Montana, or the grain bin manufacturer in Illinois, or the fellow at home that only needs two bolts from the hardware store to fix his awning. These consumers need cost relief from the noncommingling provision in the Bill and so do their suppliers, the American Distributor.

The United States would be forced to be less competitive if distribution cannot service their smaller customers in the most cost effective manner possible. The architects of the Bill that so astutely heeded the advice of the manufacturers and importers need to now listen to the distributors as they try to work with the regulations to comply with the law.

The distributors are in need of a specific amendment that could save millions of dollars and be the difference between some entities staying in business or failing.

The specific amendment requested by distributors is to waive the commingling prohibition provision for resellers, provided their customers agree. This amendment will not compromise quality or in any way undermine the intentions of the Act.

The requested amendment is not intended to integrate “grandfathered” material (manufactured prior to compliance date) with new certified material. The exemption request is only for resellers, AND NOT manufacturers, importers or private label distributors, thus assuring integrity of lots for those resellers and users that do not wish to waive commingling. There is no risk to the user that parts are not manufactured to specifications or mixed with non certified material.

Some have expressed thoughts that the waiver is a “license to steal”. The Fastener Advisory Committee (FAC) has recommended language for regulation that negated this argument, as it required the end user giving written permission and consent to receive these integrated parts. The end user customer, GENERAL MOTORS or CATERPILLAR or any user will maintain its rights provided in the Act to have full lot traceability available to them. If the end user chooses to waive complete lot traceability he would have participated with his vendor in that decision.

The amendment would make NOT HAVING lot traceability be the choice of the customer rather than having to make a choice to have lot traceability. The AAFI fully supports the Fastener Advisory Committee for an amendment in S. 4 to include the provision for the option of waiving of the commingling prohibition for distribution and feels very strongly that all three recommendations and not just the two Walker Amendments are necessary to have an Act that with all its good intentions, has a chance to work in commerce. None of these amendments compromise the intent for public safety or the assurance to consumers that products are being made to specification.

The House of Representatives, by voting for the Walker Amendment, supported change in this Act to help relieve the “hammer” of regulation as it falls on small manufacturers; it should also be consistent and relieve the “hammer” as it falls on small distributors and their users. We hope the Senate can make this happen.

Thank you, and I will be happy to answer any of your questions.

Senator BURNS. Thank you. Now we have—we will hear from Mr. William Hayes, who is president and owner of Hawaii Nut & Bolt from Honolulu, HI. You get the prize for coming the longest distance today.

STATEMENT OF WILLIAM R. HAYES, JR., PRESIDENT/OWNER, HAWAII NUT & BOLT, INC., REPRESENTING THE FASTENER INDUSTRY COALITION

Mr. HAYES. Thank you, Mr. Chairman. Good morning, and Aloha.

As you have just heard, the American fastener industry has changed drastically in the last 7 years. We have seen a lot of good results from this law already, thank you. For example, fastener buyers and users are becoming better informed. We are even seeing some buyers requesting copies of the specifications for the fasteners that they purchase. Manufacturers are now testing their products, and distributors are continually improving their level of sophistication.

Five years ago, this industry was at each other's throats. Today, we speak almost as one. This is well-evidenced by the upcoming meeting of the Western Association of Fastener Distributors, which will focus on partnering between the manufacturer and distributor. This concept depends on total trust and cooperation from the fastener manufacturer through the distributor to the product manufacturer/user. This tool would have never been possible 5 years ago.

Product improvement and industry awareness are allowing situations that were never thought possible. The products we see in today's market are far superior to yesterday's bolts. Although we, as a company, have never had a product failure, we do recognize some lowest price buyers did create a substandard market at one time.

Through the various writings of the bills that preceded Public Law 101–592, the honing process has continued almost to the point where the end product will deserve the means. There remains such a short way to go to fashion a law that will assure America that what they see is what they will get, and allow it to be so without crippling small business.

There seems to be only three remaining areas that need attention and minor changes to make this law really work in daily commerce. You have heard the gentlemen preceding me read those provisions to you.

As mentioned, the first two were added as amendments to H.R. 820 in the House of Representatives. No. 3 is my focus today. The need to allow distributors the option to intermix like items that have been laboratory tested and certified to be in full compliance was recognized long ago by those in the distribution sector. It is fairly recent that the terrible impact on American industry has been realized by others.

We are not talking about or suggesting wholesale or unlimited commingling. This is only about new bolts that have been tested and certified to be in accordance with the Fastener Quality Act and all its provisions. It is now understood by all except one small fringe group that this provision must be allowed, or this law could be disastrous to America.

The needed change to the statute was brought to light by the Fastener Advisory Committee, whose diverse group recognized the need and voted unanimously to recommend this allowance. The need for a change has also been understood, accepted, and supported, by the Industrial Fasteners Institute and the Fastener Industry Coalition, whom I am also representing, sir.

The negative ramifications of not permitting distributors the option to integrate like-tested and certified fasteners is at least fourfold:

One, just-in-time delivery, or JIT, as it is commonly called, will become very difficult in American manufacturing plants. This will greatly disrupt all of the American manufacturers who have implemented state-of-the-art, just-in-time assembly line procedures that utilize the value-added services provided by the fastener distributor.

Under present conditions, the distributor delivers fasteners directly to the line station as quantities are getting low, and in most cases literally dumps the new supply directly in with existing parts. This service allows the manufacturer to eliminate backup stocks and reduces the personnel required to receive and inspect incoming supplies. This practice also complements the growing trend of manufacturer/distributor partnering.

Two, distributors will no longer be allowed to fill open bins for contractors, mechanics, farmers, or users who buy fasteners for resale. Many fastener users have open bins that are used to have quick and easy access to their inventory. The distributor checks these bins on regular intervals and refills the sizes as the quantities get low. Packages are emptied into the individual holes so that the user can reach in and grab the required items.

Three, distributors will no longer be able to accept returns or exchanges from even their best customers if the boxes or containers have been opened. If a fastener buyer/user purchases items and later finds that another type or size is required, these products will not be returnable or exchangeable if their packages have been opened. Once a container has been opened away from a distributor's facility, no lot traceability can be assured. In such cases, the loss of customer goodwill cannot be quantified, but it is certain to be astronomical.

Four, the availability of less than full box quantities will literally disappear, even for the small user.

Distributors and resellers will not be able to afford to stock multiple open boxes. Distributors will be forced to sell in only full box quantities to eliminate the snowballing effect of multiple open boxes in their inventory.

It is a simple fact that you cannot stack partial containers of any product that has a weight and density of bolts and nuts. The boxes literally crush. The drastic increase in warehousing requirements could force many small companies out of business.

Without this amendment, you will remove graded fasteners from auto parts stores, marinas, and mass merchandisers such as Walmart, Hechinger's, Home Depot, Ace Hardware, NAPA stores, Builders Emporium, et cetera. I think you can imagine—the public outrage would be beyond imagination.

The National Institute of Standards and Technology—NIST—estimated the cost of complying with the requirement restricting mixing of like fasteners could be as high as $373 million per year only for the fastener distribution section—if only 25 percent of their sales were affected. Surveys by the Fastener Industry Coalition, an association made up of over 2,500 fastener manufacturers, distributors, and importers, reveals that 55 percent, sir, is a much closer number to the amount of fasteners covered in this law.

If this is the case, not allowing this amendment could cost our small business community over $4 billion in 5 years. If you add that to the $6 billion—with a "b"—that Mr. Edgerly alluded to in the first two provisions as addressed by the House, that comes up to, I believe, $10 billion in 5 years. This does not include the loss of customer goodwill or the extreme extra cost to the American public and American manufacturing as a whole.

In summary, we agree that indiscriminate commingling must be barred. However, the option for responsible distributors to intermix fasteners of a like size and grade that have been manufactured, laboratory tested, and certified to be in full compliance with their applicable standards and specifications, and the provisions of the Fastener Quality Act must be allowed to keep from bringing small business and America in general to her knees.

I thank you for supporting the changes that will allow America to continue to function and grow in the world market. And also, Mr. Chairman, if I may, I would like to request that any regulations be held from publication until all amendments have been considered.

Thank you very much.

[The prepared statement of Mr. Hayes follows:]

Prepared Statement of William R. Hayes, Jr.

INTRODUCTION

The authors and sponsors of "The Fastener Quality Act" (FQA) believed that they were addressing only one percent (1%) of the bolts, nuts, and screws used in America and only those fasteners that were used in critical applications. Eight (8) meetings of the Fastener Advisory Committee (FAC) and many thousands of pages of reports and transcript later, it is now recognized that approximately fifty-five percent (55%) of the fastener sales in the United States will be regulated by the Federal government. The ramifications are over-whelming.

The largest disruptive provision in the FQA is the ban against distributor "commingling". The problem is in the definition and a lack of understanding of the "value-added" services that distributors provide to the fastener users and consumers in the United States.

The solution is to continue prohibiting "commingling", to allow distributors to intermix like, tested, and certified items, and to understand the difference.

"Commingling" is wholesale blending without regards to the legitimacy of those items being blended.

"Mixing of like, tested, and certified items" (only when requested and agreed to by the buyer and/or user) is part of what American manufacturers and contractors petition and require of the company that supplies their fastener needs. This means only items that have already been laboratory tested and certified may be mixed together, and then, only when approved by the purchaser of those items.

The integrity of bolts and nuts cannot be changed in the slightest by being mixed with the same item from another lot.

Statement: Why amend to allow mixing of like items that have been tested and certified?

There seems to be an opinion that to allow fastener distributors the option to integrate or mix items of the same size and grade from different lots will undermine the integrity of The Fastener Quality Act (FQA). Those who make this claim argue that all traceability and accountability will be lost. This is not so.

The FQA does not contain anything that could be remotely considered "traceability". The FQA only requires packages or containers to be marked with a "lot" number. There is absolutely no requirement for the fasteners to be marked with anything other than the manufacturer's symbol and grade mark. Once the user discards the carton or bag that contained the fastener, all lot traceability is lost. All items of the same size and grade will be the same. 100 percent fungible and 100 percent interchangeable!

The FQA does however, mandate an excellent program for the manufacturing, importing, and laboratory testing of threaded fasteners to assure manufacturers and the American public that only proper items will be available for purchase. To allow the mixing of these tested and certified items only at the distribution level and only with the request and approval of the user, can in no way change the integrity of the part. It can only help to control cost and remove competitiveness hurdles that help allow American manufacturers to continue to upgrade and modernize their systems.

The negative ramifications of not permitting distributors the option to integrate like, tested and certified fasteners is AT LEAST four fold.

1) "Just-in-time" (JIT) delivery will become very difficult in American manufacturing plants:

This will greatly disrupt all of the American manufacturers who have implemented state-of-the-art JIT assembly line procedures that utilize the value added services provided by fastener distributors. Under present conditions, the distributor delivers fasteners directly to the line station as quantities are getting low and in most cases, dumps the NEW supply directly in with existing parts. This service allows the manufacturer to eliminate back-up stocks and reduces the personnel needed to receive and inspect in-coming supplies. * * * This practice complements the growing trend of manufacturer/distributor "partnering".

2) Distributors will no longer be allowed to fill open bins for contractors, mechanics, and users who buy fasteners for resale:

Many fastener users have open bins that are used to have quick and easy access to their inventory. The distributor checks these bins on regular intervals and refills the sizes as the quantities get low. Packages are emptied into the individual "holes" so the user can reach in and grab the required items. This valued added service is also a "hands off" feature for the buyer/user.

3) Distributors will no longer be able to accept returns or exchanges from even their best customers if the boxes or containers have been opened:

If a fastener buyer/user purchases items and later finds that another type or size is required, those products will not be returnable or exchangeable if their packages have been opened. Once a container has been opened away from a distributor's facility, no lot traceability can be assured. In such cases, the loss of customer goodwill cannot be quantified, but it is certain to be astronomical.

4) The availability of "less-than-full-box" quantities will disappear even for the small user. Distributors and re-sellers will not be able to afford to stock multiple open boxes:

Distributors will be forced to sell in only full box quantities to eliminate the snowballing effect of multiple "open boxes". It's a simple fact that you should not/can not stack partial containers of any product that has the weight and density of bolts and nuts. The boxes crush! The drastic increase in warehousing area requirements could force many small companies out of business.

The "bottom-line" net effect of not allowing this provision is direct discrimination and unnecessary harassment against American manufactures, fastener distributors and users, and small business in general.

Without this amendment you will remove "graded" fasteners from auto parts stores, marinas, and mass merchandisers, e.g. Walmart, Hechinger's, Home Depot, Ace Hardware, NAPA stores, Eagle Hardware, Payless, Builder's Emporium, etc. Public outrage would be beyond imagination.

The National Institute of Standards and Technology (NIST) estimated the cost of complying with the requirement restricting mixing of like fasteners could be as high as $373,000,000.00 per year only for fastener distributors if only 25 percent of their sales were affected. Surveys by the Fastener Industry Coalition, an association made up of over 2,500 fastener manufacturers, distributors and importers reveals, that 55 percent is a closer figure. If this is the case, not allowing this amendment could cost our small business community over $4 billion in 5 years. This does not include the loss of customer "good-will" or the extreme extra costs to the American public and manufacturing as a whole.

In summary: We agree that indiscriminate "commingling" must be barred. However, the option for responsible distributors to intermix fasteners of a like size and grade that have been manufactured, laboratory tested, and certified to be in compliance with their applicable standards and specifications, and the FQA (P.L. 101-592), MUST be allowed to keep from bringing small business (and America in general) to her knees.

Thank you for supporting changes that will allow America to continue to function and grow in the world market.

Senator BURNS. Thank you very much, Mr. Hayes, for your testimony. I would remind our witnesses this morning that all their materials, all of their testimony materials will be allowed entry into the committee testimony. So, if you have materials other than what you have read and you want it for the committee, because these proceedings will be gone over and read and digested, we hope, by the rest of the Members of the Senate and their staff when we try to make a final decision, your additional testimony material will be entered into the record as you would like.

Mr. Sharp, thank you for coming. David Sharp, who is quality assurance manager, Mechanics Choice, a division of Avnet Inc. from Fort Washington, PA, representing the Fastener Quality Association of the same town. Thank you, Mr. Sharp, for coming this morning.

STATEMENT OF DAVID F. SHARP, QUALITY ASSURANCE MANAGER, MECHANICS CHOICE, A DIVISION OF AVNET, INC., REPRESENTING THE FASTENER QUALITY ASSOCIATION

Mr. SHARP. Thank you, Mr. Chairman. I would like to take this time to present the views of the Fastener Quality Association with respect to the four topics of concern to the committee.

Issue 1, the current conditions in the U.S. fastener industry, including the degree to which substandard fasteners are being sold. There is a general understanding within the fastener industry that the Federal Government is taking the steps necessary to protect purchasers and users of graded fasteners from those who would otherwise defraud them. The degree to which this expectation is upheld and the degree to which enforcement is undertaken will largely determine the long-term benefit of this act.

With respect to the degree to which substandard fasteners are being sold, consider two recent examples. On June 3, 1993, the Industrial Fasteners Institute requested the banning of imports from Hy Port and Korea Bolt Industries for their, "complete mockery of standards and the public safety." See attachment 1, if you would like to see that notice from IFI.

As recently as July 15, FBI agents and investigators from NASA and the Department of Defense raided a company in Carlstadt, NJ, which allegedly supplied fasteners that did not meet specifications, and that is in attachment 2.

The true state of the current supply of substandard and counterfeit fasteners could best be estimated by representatives of the FBI, NASA, DCIS, U.S. Customs, and other Federal agencies all of whom have authority to protect critical areas of national concern. Remember that until final regulations are issued the Department of Commerce will not have authority to pursue violators under the act.

Issue 2, the current status of the Department of Commerce regulations. The Fastener Quality Association supports prompt publication of final regulations under the act and fails to understand why such regulations are more than 2 years past due.

Issue 3, the estimated scope, economic impact, and effectiveness of the regulations. First, the scope. As reported to Congressman John Dingell in a letter dated October 14, 1992, there has been a campaign of overstating the scope of the Fastener Quality Act in terms of the number of fasteners covered. That is attachment 3 of that letter.

It is important to recall that the original estimates of fasteners to be covered by this act were based on the percentage of fastener pieces covered while not the value of those fasteners. It is no surprise that the prices for critical fasteners are higher, and therefore account for a higher percentage of the market in terms of dollars.

It must be stated that the number of fasteners covered by this act will grow. Consensus standards groups are updating existing specifications and adding new ones at the requests of users of these fasteners who wish to have these fasteners covered under this act. These users should not be discouraged in their efforts.

The second issue, the economic impact. The greatest impact of the act may be on the manufacturers of fasteners. This is due to the requirement for chemical verification testing on every lot. In response, manufacturers have asked that the current practice of using mill heat certificates be permitted.

The Fastener Quality Association opposed the original amendments for mill heat certificates and minor nonconformances. The Walker amendment is now workable because it places responsibility with the manufacturer by having them demonstrate that the lot has been fabricated from the coil or heat number of metal used.

The issue of minor nonconformances has been correctly addressed through deference to the standards which apply to the fasteners.

The economic impact of the Fastener Quality Act on the distribution sector has been an area of widely differing opinions. Many information systems specialists have developed software designed to control products by lot. This includes systems designed for repackagers, wholesale and retail distributors, and even tool cribs. Two reports on those are attachments 4 and 5.

Many distributors have already made the investment in lot traceability systems without negative effect on their competitive positions. Many companies also repackage fasteners in a manner which maintains strict lot segregation and control, again without negative impact on their competitive positions.

The process of maintaining lot traceability is easily integrated within a receiving process. For example during the receiving process at Mechanics Choice the receiver is required to supply the following data into our information system. First, the purchase order number. Second, the quantity ordered. Third, the quantity received. Fourth, the lot number including the manufacturer code. Fifth, the test certificate number. And sixth, the country of origin.

This process takes about 30 seconds for each lot we receive, and immediately results in the printing of bar coded, lot traceable labels for the repackaging of a fastener lot. It also records this data in a history file which we maintain indefinitely.

In the above process, only step 4 is crucial to our compliance with the provisions of the Fastener Quality Act. This step takes minimal effort to form and costs my company less than $3,000 per year.

Issue 4, the arguments for or against proposed amendments to the act. The Fastener Quality Association wants to be perfectly clear on this point. First, the amendments to H.R. 820, which passed the House of Representatives, are workable.

Two, under no circumstances will any amendment which permits the commingling of fasteners within the distribution sector be considered acceptable by the Fastener Quality Association. And third, the authors of the Fastener Quality Act recognize and accounted for the issues of concern for distributors, those being plating and repackaging.

It would be unconscionable for us to consider an option which undermines the very benefits inherent to the act; namely accountability for the fasteners supplied to purchasers and users. A number of users and purchasers have contacted the Fastener Quality Association expressing their opposition to any amendment which would allow commingling or mixed lots. That would be exhibits 6A through 6X.

The very foundation of the Fastener Quality Act is the placement in the hands of fastener users the tool of lot control and traceability. This quality assurance tool was accepted by responsible companies worldwide as an effective means to ensure accountability and responsibility for products which may cause economic loss or may be life threatening in the event of failure. This act is known as the Fastener Quality Act.

Therefore, a quick review of the role of quality is in order. First, we must understand that product quality is a subset of total quality, and that lot control and traceability are the foundation of product quality, and that lot control and traceability serve for protection from honest mistakes which every manufacturer will make some day and allow for effective recalls.

Let me show you a few products if I may for a minute here. I may go overtime. Is that OK, Senator?

Senator BURNS. That is fine. You brought the hardware store.

Mr. SHARP. I apologize. I see I am in the yellow already.

Each of these products here is distributed by my company. This is a brake cleaner. These are fasteners. This is a military connector which goes in a military aircraft. This is a package of aspirin. And this is a hydraulic fitting, a high pressure hydraulic fitting.

Each of these products, as I said, is distributed by my company. Each is a product for which an error in the manufacturing or testing process can lead to economic loss, injury, or death. Each product or its package is clearly marked with the number of the lot from which the manufacturer assigned. And every one of these products has been at one time or another recalled by the manufacturer.

The manufacturers of these products perform recalls by lots. Therefore, distribution needs to control products by lots. Any quality system designed to protect consumers or users must be based upon these manufacturer lot numbers. The control of these products by lot through distribution and to the user is the only method to ensure quality.

Further, the availability of lot numbers on packages of fasteners offers consumers and users of fasteners an opportunity to verify the integrity of the supply system. This is accomplished through independent testing of the fastener supplied, and comparison of the results of these tests with the results provided on the supplier's own report. This is the least expensive and most powerful tool a consumer or user of fasteners has for verifying the integrity of the supply system and the products supplied therefrom.

It is the opinion of the Fastener Quality Association that any owner of record of any quantity of fasteners covered by this act be guaranteed unimpeded access to test reports for any lot of fasteners which they possess. Proof of ownership and nominal fee should be all that is required to obtain a test report direct from the manufacturer.

Last, if the Senate is going to entertain an amendment to allow commingling at the distributor level, we ask that Congress additionally act to change the name of the Fastener Quality Act to simply the Fastener Act because the concepts of commingling and a loss of accountability are foreign to professionals in the field of quality assurance. Lot control and traceability are the answers to the question of accountability and responsibility for products.

In summary, the gravity of the substandard and counterfeit fastener issue cannot be underestimated. Congress has acted responsibly in passing the Fastener Quality Act. The House of Representatives acted responsibly in attaching to H.R. 820 the technical amendments needed to ensure proper interpretation of the act.

The supply of lot segregated and controlled traceable product to the consumer provides the best assurance of compliance to standards and guarantees consumers a means to audit the supply system.

The cost of compliance to the distribution sector are minimal, and failure to implement the regulations will reward cheaters, counterfeiters, and producers of substandard fasteners while continuing to penalize quality producers and distributors.

Thank you, Mr. Chairman. I appreciate your letting me go overtime there.

[The prepared statement of Mr. Sharp follows:]

Prepared Statement of David F. Sharp

Chairman Rockefeller and Members of the Subcommittee, I appreciate the opportunity to appear before you today. My name is David Sharp, and I am the Quality Assurance Manager for the Mechanics Choice division of Avnet Inc, and a member of the Fastener Quality Association. I would like to take this time to present the views of the Fastener Quality Association with respect to the four topics of concern to the committee:

1) The current conditions in the U.S. fastener industry, including the degree to which substandard fasteners are being sold,
2) The current status of the Department of Commerce regulations,
3) The estimated scope, economic impact, and effectiveness of those regulations,
4) The arguments for and against proposed amendments to the Act.

ISSUE I.—THE CURRENT CONDITIONS IN THE U.S. FASTENER INDUSTRY, INCLUDING THE DEGREE TO WHICH SUBSTANDARD FASTENERS ARE BEING SOLD

There is a general understanding within the fastener industry that the Federal government is taking the steps necessary to protect purchasers and users of graded fasteners from those who would otherwise defraud them. The degree to which this expectation is upheld, and the degree to which enforcement is undertaken, will largely determine the long term benefit of this Act.

With respect to the degree to which substandard fasteners are being sold, consider two recent examples:

On the third of June 1993, The Industrial Fasteners Institute requested the banning of imports from Hy Port and Korea Bolt Ind. Co. Ltd. for their "complete mockery of standards and the public safety." (See Attachment 1)

As recently as July 15th, FBI agents and investigators from NASA and the Department of Defense raided a company in Carlstadt, New Jersey which allegedly supplied fasteners that did not meet specifications. (See Attachment 2)

The true state of the current supply of substandard and counterfeit fasteners could best be estimated by representatives of the FBI, NASA, DCIS, U.S. Customs, and other Federal agencies, all of whom have authority to protect critical areas of national concern. Remember that until final regulations are issued, the Department of Commerce will not have full authority to pursue violators under the act.

ISSUE II.—CURRENT STATUS OF THE DEPARTMENT OF COMMERCE REGULATIONS

The Fastener Quality Association supports prompt publication of final regulations under the Act, and fails to understand why such regulations are more than two (2) years past due.

ISSUE III.—THE ESTIMATED SCOPE, ECONOMIC IMPACT, AND EFFECTIVENESS OF THE REGULATIONS

1) *Scope:* As I reported to Congressman John Dingell in a letter dated 14 October 1992, there has been a campaign of overstating the scope of the Fastener Quality Act in terms of the number of fasteners covered. (See Attachment 3)

It is important to recall that the original estimates of fasteners to be covered by this Act were based on the percentage of fastener (pieces) covered by the law, not the value of those fasteners. It is no surprise that the prices for critical fasteners are higher, and therefore account for a higher percentage of the market in terms of dollars.

It must be stated that the number of fasteners covered by this Act will grow. Consensus standards groups are updating existing specifications and adding new ones at the request of users of these fasteners who wish to have these fasteners covered under the Act. These users should not be discouraged in their efforts.

2) *Economic Impact:* The greatest impact of the Act may be on the manufacturers of fasteners. This is due to the requirement for chemical verification testing on every lot. In response, manufacturers have asked that the current practice of using mill heat certificates be permitted.

The Fastener Quality Association opposed the original amendments for mill heat certificates, and minor non-conformances. The Walker Amendment is now workable because it places responsibility with the manufacturer by having them demonstrate that the lot has been fabricated from the coil or heat number of metal used.

The issue of minor non-conformances has been correctly addressed through deference to the standards which apply to the fasteners.

The economic impact of the FQA on the distribution sector has been an area of widely differing opinions. Many Information Systems specialists have developed software designed to control products by lot. This includes systems designed for repackagers, wholesale and retail distributors, and even tool cribs. (See Attachments 4 & 5)

Many distributors have already made the investment m lot-traceability systems without negative effect on their competitive positions. Many companies also repackage fasteners in a manner which maintains strict lot segregation and control.

This process of maintaining lot-traceability is easily integrated within a receiving process. For example, during the receiving process at Mechanics Choice, the receiver is required to supply the following data into our information system: 1) Purchase order number; 2) Quantity Ordered; 3) Quantity Received; 4) Lot Number, including three (3) digit manufacturer code; 5) Test Certificate Number; and 6) Country of Origin.

This process takes about 30 seconds for each lot we receive, and immediately results in the printing of bar-coded, lot-traceable labels for the repackaging of a fastener lot. It also records this data in a history file which we maintain indefinitely. In the above process, only step four (4) is crucial to our compliance with the provisions of the Fastener Quality Act. This step takes minimal effort to perform, and costs my company less than $3,000/yr.

ISSUE IV.—THE ARGUMENTS FOR OR AGAINST PROPOSED AMENDMENTS TO THE ACT

The Fastener Quality Association wants to be perfectly clear on this point:

1) The amendments to H.R. 820 which passed the House of Representatives are workable.

2) Under no circumstances will any amendment which permits the commingling of fasteners within the distribution sector be considered acceptable by the Fastener Quality Association.

3) The authors of the Fastener Quality Act recognized and accounted for the issues of concern for distributors: plating & repackaging.

It would be unconscionable for us to consider an option which undermines the very benefits inherent to the Act, namely accountability for the fasteners supplied to purchasers and users.

A number of users and purchasers have contacted the Fastener Quality Association expressing their opposition to any amendment which would allow commingling, or mixed lots. (See Exhibits 6a through 6x)

The very foundation of The Fastener Quality Act is the placement in the hands of fastener users the tool of lot control and traceability. This quality assurance tool is accepted by responsible companies world-wide as an effective means to ensure accountability and responsibility for products which may cause economic loss, or may be life-threatening in the event of failure.

This Act is known as The Fastener Quality Act; therefore, a quick review of the role of quality is in order: I. Quality, Lot Control, and Traceability; a) Product Quality is a subset of Total Quality, b) Lot control & traceability are the foundation of product quality, c) Lot control & traceability serves as protection from honest mistakes, and allow for effective recalls. (Exhibit of Lot controlled, traceable products) e.g.Military connectors, chemicals, hydraulic fittings, aspirin, fasteners.

Each of these products has 4 things in common:

1) Each is a product distributed by my company.

2) Each is a product for which an error in the manufacturing or testing process could lead to economic loss, injury, or death.

3) Each product or its package is clearly marked with the number of the lot which the manufacturer assigned.

4) Every one of these products has been at one time or another recalled by its manufacturer.

The manufacturers of these products perform recalls by lot(s); therefore, distribution needs to control products by lot(s). Any quality system designed to protect consumers/users must be based upon these manufacturer lot numbers. The control of these products by lot through distribution and to the user is the only method to ensure quality.

Further, the availability of lot numbers on packages of fasteners offers consumers/users of fasteners an opportunity to verify the integrity of the supply system. This is accomplished through independent testing of the fasteners supplied, and comparison of the results of these tests with the results provided on the supplier's own report.

This is the least expensive and most powerful tool a consumer or user of fasteners has for verifying the integrity of the supply system and the products supplied therefrom.

Q: Why is it so important to the importers and some distributors that consumers be unable to verify the integrity of the supply system?

It is the opinion of the Fastener Quality Association that any owner of record of any quantity of fasteners covered by this Act be guaranteed unimpeded access to test reports for any lot of fasteners which they possess. Proof of ownership and a nominal fee should be all that is required to obtain a test report direct from the manufacturer.

Lastly, if the Senate is going to entertain an amendment to allow commingling at the distributor level, we ask that Congress additionally act to change the name of The Fastener Quality Act to simply The Fastener Act because the concepts of commingling and a loss of accountability are foreign to professionals in the field of Quality Assurance.

Lot control and traceability are the answers to the question of accountability and responsibility for products.

Summary:

1) The gravity of the substandard and counterfeit fastener issue can not be underestimated,

2) Congress acted responsibly in passing The Fastener Quality Act,

3) The House of Representatives acted responsibly in attaching to H.R. 820 the technical amendments needed to ensure proper interpretation of the Act,

4) The supply of lot-segregated and controlled traceable product to the consumer provides the best assurance of compliance to standards, and guarantees consumers a means to audit the supply system,

5) The costs of compliance to the distribution sector are minimal,

6) Failure to implement the regulations will reward cheaters, counterfeiters, producers of substandard fasteners, while continuing to penalize quality producers and distributors.

[Attachments 1 through 6a–x may be found in the committee's files.]

Senator BURNS. Thank you, Mr. Sharp. I will just go down and ask a few questions, followup questions, on some of the statements that you have made, to all of the witnesses here today.

Mr. Edgerly, we will start with you. Would the institute—do they object to the amendments that have been proposed to this bill, all three of them?

Mr. EDGERLY. Mr. Chairman, no, we do not object. In point, we believe that the amendments that are proposed for chemistry and for solving the problem of nonconforming fasteners are oversights of interpretations based upon the way the law was written, and we would very much support H.R. 820 which would serve to change the law to allow for these technical changes.

We are very much concerned, however, over the opposition that has been raised in the House on the commingling issue. And at this point in time, Senator, we would not want to postpone further any implementation of this law based on controversy that would erupt in Congress over whether or not to include commingling.

We are already 2 years behind the ball in getting these regulations out, and at this point we believe that the requirements for mill heat and for nonconforming fasteners, if not changed through amendments to the act, will literally bring this industry to its knees.

We would, therefore, hope that nothing would stand in that way. To that extent, we believe that the issue of commingling, which is opposed in the House, might prohibit the three amendments or the two amendments from being passed. The administration would not like to see that happen. Thank you.

Senator BURNS. In other words, you are saying that we are down to these three items that have been held in controversy before the law can go into full effect?

Mr. EDGERLY. That is correct, sir. The regulations are currently in the Department implementing this law as it is currently written. Our fear and the administration's fear is that if there are substantial delays in getting these amendments through Congress, we will have to issue these regulations as they are currently written. To do so would, as I have said, literally bring this industry to its knees.

So, we would very much like to see quick and timely movement on the two amendments that have been proposed in H.R. 820 and would hope the commingling issue would not get in the way of that.

Senator BURNS. Tell me about this, the Fastener Advisory Committee members. Mr. Edgerly, just for the record, give me the makeup of that, who they are and the different phases of the industry that they represented?

Mr. EDGERLY. Thank you very much, Mr. Chairman. The committee is represented by 15 members by statute, under section 14 of the law. We were required to set up balanced representation from the standpoint that we were to have manufacturers, users, distributors, and representatives of standards organizations on the committee.

The process for selecting the committee was done through the normal Federal advisory committee act process, and that is nominations were sent in from all over. Some came from Members on the Hill, some came from the White House, others came from interested associations and organizations. But we followed pretty much the advisory committee process in selecting those members.

When we started the committee was not together. They were a group of individuals who represented very much individual viewpoints. After 8 meetings and 2,000 pages of transcript, the committee has come together and I think has recognized in the process the need for the public good and the need for workable and cost-effective laws. And I think what we have in terms of the committee's recommendations are indeed the opinions of a group of good citizens who feel that this is good public policy.

Thank you.

Senator BURNS. That is the way it always goes in those organizations. It is kind of like rocks. You know, you roll them around long enough and they finally smooth out and everybody goes to getting along, but it takes a while.

Mr. Wasmer, after manufacture can you distinguish between two or more lots of your company's bolts at the same size and grade if they happen to get intermixed?

Mr. WASMER. No, I cannot.

Senator BURNS. With space permitting, can you mark anything you want to on the head of a bolt? In other words I guess what we are driving at here, can we get into a situation where you can counterfeit these bolts.

Mr. WASMER. I would believe anybody can counterfeit them. I believe that that has been done.

Senator BURNS. And I assume that you are a manufacturer. Is that correct?

Mr. WASMER. That is right.

Senator BURNS. Do you agree with the testimony of Mr. Hayes, that all three of these changes that have been recommended by his organization should be accepted?

Mr. WASMER. I speak mainly from the manufacturing on the first two issues. And the third one, I agree that there is a problem there and it needs to be solved somehow. But I am not a distributor, so I do not share the same problem that Mr. Hayes does.

Senator BURNS. Mr. Sharp, you are the one that sort of showed up at the party this morning, and I appreciate your testimony. How many members do you have in your organization?

Mr. SHARP. Corporate members? Five right now.

Senator BURNS. Now, are you in the distribution business?

Mr. SHARP. Yes, sir, I am.

Senator BURNS. How long have you been in the distribution business?

Mr. SHARP. Six years.

Senator BURNS. I want to go over to Mr. Hayes, now, and ask some questions with regard to your organization. And we talked about this at great length when we were dealing with the legislation and how it was passed. Could you give me some idea on the size of your business as an individual, and do you normally sell in large quantities? And you might pull that microphone over in front of you and then give me an average size or an average order that you might handle.

Mr. HAYES. Thank you very much, Mr. Chairman. My company is actually quite small. It encompasses a total of 10 people. We are a very small business. We deal primarily in less than full box quantities. In other words, we do not have manufacturing to work with. We are more in the business of supplying the user and those involved in the agricultural business that need 1, 2, 6, 10, or 12 bolts to repair their harvester or whatever they happen to be working on at the time. I believe approximately 98 percent of our total sales, per line item, are less than full box quantities.

The association, or the Fastener Industry Coalition that I am representing, represents approximately 2,500 companies and approximately 60,000 employees in all 50 States.

Senator BURNS. Give me an idea as a distributor what percent of your sales require traceability or trackability.

Mr. HAYES. Maybe one-tenth of 1 percent, sir.

Senator BURNS. Are those areas considered critical?

Mr. HAYES. Those that would require traceability, yes, sir.

Senator BURNS. In what way?

Mr. HAYES. Primarily in the nuclear submarine and level I category, sir, at Pearl Harbor Naval Shipyard.

Senator BURNS. Have you ever been asked for traceability for anything other than a critical application?

Mr. HAYES. I have never been asked for a traceability for anything other than a nuclear submarine application, sir.

Senator BURNS. How much extra does that type of traceability would you say it would cost you as the law is written now?

Mr. HAYES. At least an additional 1,000 percent.

Senator BURNS. Do you feel your customers would be willing to pay those higher prices for fully traceable fasteners, even when there is a noncritical application?

Mr. HAYES. If I may, Mr. Chairman, I think they might be dumping tea in the harbor about the same time, if that properly answers your question.

Senator BURNS. I have over 5,000 teabags in my office now. [Laughter.]

That is on another subject. We will not get into that.

Mr. Schonholtz, thanks for coming this morning, and who makes the decision or acceptance of nonconforming fasteners, the distributor or the user?

Mr. SCHONHOLTZ. The suggestion would be that the user would make that decision. He is the only one that would know what his requirements would be.

Senator BURNS. Would you want to respond to that, Mr. Sharp?

Mr. SHARP. On the issue of nonconformances?

Senator BURNS. Yes.

Mr. SHARP. I believe that the end-user, if they have an engineer involved, certainly is capable of deciding whether the parts are fit for what they intend to do with them.

Senator BURNS. Mr. Schonholtz, if the distributor does not have to advise the end-user that these parts are nonconforming, do you have to advise your customer of that, or does he make that decision himself?

Mr. SCHONHOLTZ. Well, if you are selling the parts to the standard, I think the standard is ASME B18.18.2M. It allows for the sale of nonconforming fasteners, but you must get a written confirmation from your customer that he understands the nonconformance and agrees to accept the parts.

Senator BURNS. Let me ask you a question. How much of a problem is it whenever we have bolts coming into this country in partly made up parts?

Mr. SCHONHOLTZ. Components?

Senator BURNS. Yes, components. Is that a big problem?

Mr. SCHONHOLTZ. Well, I do not know if it is a problem or not. I do know that the act does not address that. Component sales are not included in the act. So, if Toyota wants to bring something—just naming Toyota—wants to bring in a part that has fasteners that would be decidedly high strength in nature, they would not be included in the act as it is written today.

Senator BURNS. Are there quality control people within the organizations that periodically check bolts coming in and components? Do you know? Can you speak from a manufacturer's standpoint? Does that ever happen, I am wondering?

Mr. WASMER. To the best of my knowledge, in calling on the OEM's, they are not inspected. That is to the best of my knowledge.

Senator BURNS. This is—I guess that is just about all the questions I have, and I am not real sure whether the chairman of this committee has any questions. The record will remain open. We will keep it open for the next couple of weeks on this oversight, and any information that you would like to enter into the record, all of you, why, that would be acceptable by this committee.

I know we will be doing something along this area and taking your recommendations and also gathering some information before a final decision is made.

I appreciate your all coming today, and I appreciate your testimony. And as far as I am concerned, this oversight hearing is adjourned. Thank you very much.

[Whereupon, at 11:45 a.m., the hearing was adjourned.]

APPENDIX

LETTER FROM BARRY PORTEOUS AND BRIAN SONNENBERG, COCHAIRMEN, FASTENER INDUSTRY COALITION

JULY 23, 1993.

The Honorable JOHN D. ROCKEFELLER IV
U.S. Senate,
Washington, DC 20510

DEAR MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE: The member associations of the Fastener Industry Coalition (FIC) respectfully urge the Senate to consider amendments to the Fastener Quality Act (P.L. 101-592).

The FIC has tracked the progress of this law for many years. We fully believe and support its intent: to ensure that fasteners are manufactured and tested according to specifications. We also fully believe that the law places an undue and severe burden on the fastener industry, which has the potential of crippling U.S. manufacturing and industry.

Although P.L. 101-592 was originally intended to affect only one percent of fasteners sold in commerce, the reality is that it will affect much more. The fastener distributors who are members of the FIC associations report a minimum of 5 percent of their fastener inventory will be affected by the law, with some estimates as high 100 percent. Attached is a report of the survey results.

NIST's Regulatory Impact Analysis and our own survey data support the need for changes in P.L. 101-592. Three specific changes have been recommended by the Fastener Advisory Committee, regarding certification of chemistry, regarding parts that have minor dimensional nonconformances, and regarding limited commingling by distributors of like fasteners that are manufactured, tested, and certified to the same specifications if permission is granted in writing by the purchaser of such fasteners.

Congressman Dingell supports two of the three amendments recommended by the Fastener Advisory Committee. We, the member associations of the Fastener Industry Coalition, support all three recommendations. Please keep in mind that the member companies of our associations include fastener distributors, manufacturers, importers, and providers of secondary operations; we represent approximately 2,500 companies with more than 60,000 employees nationwide. Although our constituency is diverse, we are able to reach consensus on what is best for our industry.

Again, we urge the Senate to adopt the recommendations of the Fastener Advisory Committee. Please keep in mind that appointment of this committee was mandated by the Fastener Quality Act; that its members are experts from government and industry, as well as all segments of the fastener industry; that its members spent hundreds of hours and traveled at their own expense to serve the committee's charter; and that their motion to recommend amendments to the law passed by unanimous vote. It is difficult to understand why recommendations of the selected experts of the industry cannot be considered.

Sincerely,

BARRY PORTEOUS,
Cochairman.
BRIAN SONNENBERG,
Cochairman.

[Miscellaneous information supplied by the Fastener Industry Coalition may be found in the committee's files.]

LETTER FROM WILLIAM R. HAYES, JR., PRESIDENT AND OWNER, HAWAII NUT & BOLT, INC.

AUGUST 3, 1993.

Mr. LOUIS C. WHITSETT,
Dirksen Senate Office Bldg.
Washington, DC 20510

DEAR MR. WHITSETT: Please allow the following to be admitted as additional written testimony to the hearing held July 28, 1993 by the Science, Technology, and Space Subcommittee of the Senate Committee on Commerce, Science, and Transportation. Thank you.

I have been asked to explain, in detail, why my costs of conforming to the requirements of the "Fastener Quality Act" (PL 101-592) are so much higher than those of David Sharp of "Mechanics Choice". Kindly give this your full consideration or, if you would prefer, I will be more than willing to swear, under penalty of perjury, that this statement is true to the best of my knowledge, belief, and 22 years of experience (17 of those as a small business owner) in the "full line" distribution sector of the threaded fastener industry.

There are many different facets to our industry. To compare "Mechanics Choice" (in the center of America's industrial and distribution region) and "Hawaii Nut & Bolt" (in the middle of the Pacific Ocean) is akin to comparing "Walmart" with a "mom and pop" backwoods general store. We basically are in the same business, but our customers and situations cause us to adjust to our own environments in many different ways.

"Mechanics Choice"(MC) has demonstrated that their national market of maintenance and repair customers has allowed them to broadly diversify into non-fastener items such as fittings and asperin. It would seem that bolts and nuts are a minute portion of their sales volume. In comparison, "Hawaii Nut & Bolt" (HNB) depends almost entirely (approximately 98 percent) on the sale of threaded fasteners and related items to a very narrow and restricted market. Our contractor, ship repair, military, industrial, and agricultural customers have forced us to carry an extremely broad inventory of fasteners in all types, sizes materials, and grades.

Where MC carries a very narrow coverage of the fast moving items needed by the "MRO" market, HNB is a "full line", "full service" fastener distributor with almost 50,000 individual fastener part numbers to supply our customer's very diversified requirements. Our warehouse is full of bolts, nuts and screws that range in size from "00-90 inch (.047 inch diameter) through and including 4 inch diameter. (one 4 inch nut weighs almost 22 pounds each!). HNB stocks items of virtually all grades of steel with many different platings and coatings, along with several grades of stainless steel, monel, K-monel, brass, bronze, copper, aluminum, inconel, hastelloy, titanium, nylon, etc.

It's my understanding that MC primarily buys in large bulk containers and repackages down to "package" quantities. HNB purchases in smaller packages and splits those for our customers that only require one bolt or a few to satisfy a current need. Approximately 98 percent of our sales are in partial box quantities. We have no rniium order requirements and HNB does not force their customers to buy more than they need. Consequently, our shelves must accommodate thousands of partially filled boxes, but we are still happy to sell a single piece if that's all our customer needs. Large, computerized, automated palatial warehouses with unlimited resources and a national market are luxuries that HNB neither has nor desires. We operate a small, manual business out of a small conservative commercial building in a very restrictive market area.

Standard & Poor's estimates that Avnet, Inc., MC's parent company, will earn $78,176,000.00 gross profit in their '92-'93 fiscal year. HNB will be lucky to show a profit of $65,000. HNB is a very small business and cannot absorb the large financial outlays of the huge multi-billion dollar, multi-national corporations. Where MC can scrap the "left over" pieces in their repackaging operations, HNB simply cannot afford that extravagance. If the "Fastener Quality Act" is not amended, MC as a company, and David Sharp as an individual will have very little, if any, financial impact. HNB could expect financial disaster.

In following Mr. Sharp's dissertations editorials, and letters-to-the-editor, it appears that he has misunderstood some of my comments and financial impact data. To help remove any ambiguities, let us revisit some of his journalese

When discussing the costs of implementing PL 101-592 in the April, 1992 issue of "Fastener Technology International" Mr. Sharp states "Bill Hayes of Hawaii Nut & Bolt gave an estimate closer to $350,000.00/year per distributor." THIS IS NOT TRUE! I had originally estimated my first year costs to be approximately $350,000.00 and $60-80,000.00 annually thereafter. (Note: THESE ARE MY EX-

PECTED COSTS; NOT FOR ALL DISTRIBUTORS). After closer inspection and consultation with outside professionals, I revised my initial figures to $500,000.00 for the first year and $90,000.00 plus or minus 10 percent for each year following.

Mr. Sharp goes on to report that his expenses amount to "less than $3,000." And then continues with "how can our estimates differ so greatly from those put forth at the meetings of the FAC?" Then Mr. Sharp answered part of his own question. "Granted the costs to my firm may be minimalized because we already have an extensive system of controls in place. In addition, we may also have an advantage in that we have a powerful computer system and a team of top-notch programmers at our disposal." More power to them.

What Mr. Sharp does not discuss is his limited amount of fastener inventory items or that MC does business in a considerably different manner that the vast majority of fastener distributors. Especially those who are "full-line" specialists.

The article continues to describe MC's warehousing philosophy. He correctly points out that "clearly the random method uses space more efficiently". However, Mr. Sharp seems to have forgotten his description of an "assigned location" system that so aptly describes the necessities of the full-line distributor. Mr. Sharp comments "This type of system is desirable for retail operations such as a hardware store".

In a bulk warehouse operation, material and inventory is normally stored on pallets placed into hi-rise systems called "pallet racking". This is an arrangement that allows the warehouse manager to calculate his storage area by the cubic foot. On a typical fastener pallet in a "random" scheme you will usually find from 1-32 inventory items. (one pallet=32 cubic feet). At HNB we use this system for bulk stock (2 percent). However, because this method does not work with small packages and less-than-full-box quantities, we find it necessary to use seven feet tall open front bins. It is not atypical to see as many as 370 inventory items in the same 32 cubic feet.

While attending a college class on "inventory control and warehouse management", we were taught to use the system that best fit your particular business. Such as: a brewery might argue that 10,000 gallon vats were the best system for stock control. They would probably be correct. However, a liquor store is more interested in how to control their stock of six-packs and singles. They would also be correct.

I wish I were bright enough to understand how or why a person or company would want to attack another person or company unless it is for personal gain. It is interesting to note an excerpt from a "Bowman Distribution" internal memo to their sales agents, "Bowman saw the passage of HR-3000 as an opportunity to expand business * * *." Or a manufacturer commenting in "Fastener Industry News" on a new association; "Nothing is impossible for the person who does not have to do it."

Following this statement you will find a chart showing comparisons between "Mechanic's Choice" and "Hawaii Nut & Bolt". Sadly, I have not visited a MC facility. My comparative information is based on papers written by Mr. Sharp, reports by those who are familiar with MC, my personal knowledge of companies similar to MC, and conversations with Mr. Sharp.

I guess we just need to learn more about the world outside our own bubble. As John Cole of "Product Risk Reduction, Inc." so appropriately quoted Dr. W. Edwards Deming; "If we do not agree, we do not have enough data."

Thank you for allowing me the opportunity to submit this overview of the differences within one sector of the fastener industry. Let's not all become doctrinaires.

Sincerely,

WILLIAM R. HAYES, Jr.,
President/Owner.

The Differences Between Mechanic's Choice, div. of Avnet, Inc. and Hawaii Nut & Bolt, Inc.

Mechanic's Choice	Hawaii Nut & Bolt, Inc.
1) Large Business: Division of Avnet, Inc. (Multi-$-Billion/multi-national).	1) Small Business-family owned (Local restricted market).
2) $2 Billion est. sales '92-'93 $78 Million est. profit	2) $2 Million sales '92-'93 $65,000 est. profit.
3) Broadly diversified inventory (non-fastener i.e., fittings & asperin).	3) Full-line "fastener specialist" (98 percent of sales are fasteners or related).
4) Mostly "MRO" accounts	4) Varied markets (resale/retail/govt.).
5) Narrow coverage (only fast moving items)	5) Very broad inventory (almost 50,000 items).

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The Differences Between Mechanic's Choice, div. of Avnet, Inc. and Hawaii Nut & Bolt, Inc.—Continued

Mechanic's Choice	Hawaii Nut & Bolt, Inc.
6) Small range of product materials	6) All types, sizes, grades & materials.
7) Buys in large bulk quantities and repackages down to "package" sizes.	7) Buys in "package" quantities sells as few as one-at-a-time.
8) Stocks bulk quantities "randomly" in pallet racked warehouses.	8) Must use open front "package" bins to hold partial boxes.
9) Able to absorb major cost impact	9) Potential financial disaster.

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